masses requiring biopsy may be discovered by a prebiopsy mammogram.

Ultrasound imaging of the breast is useful in differentiating solid from cystic masses, finding abscesses in patients with severe mastitis, and providing guidance for needle aspiration of deep breast cysts. Its value as a screening tool has not yet been proved.

With fine-needle aspiration, a cytologic technique is used for assessing breast lesions; its accuracy is approximately 90%. A cystic mass can be eliminated. Diagnoses are made earlier when fine-needle aspiration is used at the time a lump is first evaluated. If carcinoma is found, a patient will receive appropriate counseling and therapy earlier, and the anxiety of waiting for a surgical consultation can be substantially diminished. A negative result does not eliminate the need for a formal biopsy.

Open biopsy, using either a local or a general anesthetic, is the cornerstone to diagnosing breast disease. Needle localization and biopsy of occult lesions have greatly increased the proportion of patients with carcinomas of favorable prognosis.

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Operative Laparoscopy

OPERATIVE LAPAROSCOPY offers notable benefits compared with laparotomy: decreased patient discomfort, length of hospital stay, and cost. Laparoscopic surgical options have been enhanced by using additional puncture sites and modern instrumentation including the laparoscopic laser. Results may be comparable to those with traditional laparotomy for a wide variety of gynecologic disorders including ectopic pregnancy, hydrosalpinx, endometriosis, and tuboovarian adhesions. Specific anatomic considerations, however, such as extent of disease and adhesions, may limit the use of operative laparoscopy and necessitate a surgical approach.

Although most ectopic pregnancies are ruptured or too advanced—greater than 3 cm in diameter—at diagnosis to permit treatment to be completed solely with the laparoscope, unruptured ampullary tubal pregnancies may be treated using the laparoscope to allow tubal preservation. A linear salpingostomy is made along the antimesenteric border of the tube after its base is injected with a dilute solution of a vasopressin (Pitressin) for hemostasis. The ectopic implant can then be removed with laparoscopic forceps.

The carbon dioxide and argon lasers both have laparoscopic applications, particularly for lysing pelvic adhesions and vaporizing implants of endometriosis. The argon laser is particularly useful because its wavelength, 488 nm, is selectively absorbed by pigments (hemosiderin and hemoglobin) concentrated in endometriosis implants.

Hydrosalpinx may be treated by laparoscopic incision of the ampullary portion of the tube after its distension with saline and methylene blue. Peritubal and fimbrial adhesions are lysed by microcautery or with the carbon dioxide laser. Tubal edges can be everted with a defocused laser beam to the tubal peritoneum.

Continuing innovation, such as laparoscopic suture placement, will expand on the indications for operative laparoscopy. Large case studies in the future will establish the choice of operative laparoscopy over conventional laparotomy.

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Endometriosis—New Insights Into an Enigmatic Disorder

THE CLINICAL SYMPTOMS associated with endometriosis include pelvic pain, as well as dysmenorrhea or infertility, or both. The pathognomonic feature of this disease is the presence of hormonally responsive endometrial glands and stroma in extrauterine sites. These lesions can vary dramatically in their appearance, ranging from violaceous nodules to simple petechiae. The visible and histologic manifestations of endometriosis are remarkably prevalent and have been identified in as many as 50% of premenopausal women. Fortunately, only 10% to 15% of women seem to be symptomatically affected. Contrary to earlier reports, endometriosis has no racial or socioeconomic predilection, although a polygenic and multifactorial hereditary propensity for endometriosis has been shown.

A definitive diagnosis requires direct visualization of the endometriotic lesions. Laparoscopy is the primary diagnostic method, with confirmation by biopsy if uncertainty exists. Ancillary diagnostic modalities, such as magnetic resonance imaging of the pelvis and serum concentrations of the coelomic antigen CA-125, currently lack the sensitivity and specificity, respectively, for routine clinical application. The American Fertility Society classification system, based on the visible sites and extent of involvement, has gained widespread acceptance for staging.

Hormonal therapy for endometriosis has included high-dose synthetic estrogens, progestins, oral contraceptives, androgens and derivatives of testosterone, but many of these agents are associated with undesirable side effects. Recent clinical trials suggest that gonadotropin-releasing hormone analogues may be safe and efficacious agents to treat the disease. Continuous, nonpulsatile administration of gonadotropin-releasing hormone creates a distinct hormonal pattern, with an initial rise followed by an inhibition of gonadotropin release. The menopause-like condition brought about by long-term treatment with gonadotropin-releasing hormone analogues induces endometrial atrophy and thus provides a basis for its use in endometriosis. "Hot flashes" are a well-recognized side effect of analogue treatment, and there may be an adverse effect on estrogen-dependent bone density. Although the analogues show promise, comparative studies with other agents used to treat endometriosis-associated infertility will be necessary to determine efficacy. Only one agonist, leuprolide acetate (Lupron), is clinically available and currently approved for treating prostatic carcinoma. It is anticipated that this and additional long-acting agonists will become available in the next two to five years for the therapy of endometriosis.

Although preliminary reports are few, laparoscopic laser ablation for women with moderate to severe endometriosis

appears to be as effective as traditional surgical treatment. Advantages of laparoscopy-directed laser or electrocautery are decreased cost and morbidity for appropriate patients. For patients in whom infertility persists after ablative therapy, in vitro fertilization or gamete intrafallopian transfer may be indicated.

Areas of active investigation include assessing abnormal endocrine and immune responses in women with endometriosis, trials of combined medical and surgical therapies, and developing discriminating analyses to evaluate the efficacy of treatment.

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Mammography—The State of the Art

IN AMERICA, breast cancer will develop in one in ten women, and there will be 42,000 breast cancer deaths in 1988. Despite improvements in surgical techniques and adjunctive therapies, only screening mammography—that is, mammography done for asymptomatic women—has been able to significantly reduce breast cancer mortality thus far.

Breast cancer has been reported to be present two to seven years before detection. Because mammography has a threshold for detectability of around 2 mm, many breast cancers can be detected long before they are palpable. If the lesions are totally in situ and less than 5 mm in diameter, the 20-year survival rate is 93%. The significance to breast cancer mortality can be staggering.

The American Cancer Society's guidelines for mammographic screening are as follows:

Ages 35 to 40	Baseline examination
Ages 40 to 50	Annually or biannually, depending on risk
Over 50	Annually

Failing to diagnose cancer is a serious and frequent cause of medical liability. These guidelines have become a standard of care throughout the medical community. In certain states, for example, malpractice insurance companies levy heavy surcharges—$25,000 by one Colorado company—on physicians who do not follow these guidelines, and some attorneys are convinced they will lose any case, regardless of its merit, if the guidelines were not followed.

Despite the good news about early detection with mammography, it should be noted that approximately 10% of breast cancers are missed completely with mammography. Palpable masses, therefore, despite negative mammography results, cannot be ignored and require further workup and diagnosis. In addition, approximately 20% to 30% of questionable lesions found with mammography turn out to be cancer. This specificity may be improved with special technical advances, such as magnification, coned compression, and, perhaps, special grid techniques.

Until recently, the fear that radiation could cause malignant changes made physicians and their patients afraid of routine mammography. With modern equipment, the dose of radiation is 0.1 to 0.5 rads per breast examined. The risk of inducing cancer from this minimal dose is thought to be equivalent to smoking a quarter of a cigarette and, thus, no longer an argument against screening.

It behooves practitioners today to follow the American Cancer Society's guidelines, ascertain the quality of equipment used, and refer patients to interested, competent radiologists.

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Personal Protection Against Sexually Transmitted Diseases

THE CURRENT EPIDEMIC of human immunodeficiency virus (HIV) and other viral sexually transmitted diseases has highlighted the importance of primary prevention of these illnesses. A rapidly growing body of literature has documented several pragmatic strategies.

Behavioral messages should emphasize mutual monogamy, careful selection of sexual partners, and avoiding sexual practices, such as anal intercourse, that may carry increased risks of infection.

Clinical and laboratory studies confirm that using barrier contraceptives and spermicides confers significant protection against acquiring sexually transmitted diseases, especially when used simultaneously—such as a condom plus spermicidal foam. Latex condoms may offer greater protection than natural lamb cecum condoms. The contraceptive sponge recently has been found to protect against infection with the gonococcus and *Chlamydia trachomatis.* Sterilization of men and women provides excellent protection against upper genital tract infections.

Hepatitis B, recently recognized as an important sexually transmitted disease among heterosexuals, is the only one for which there is a safe and effective vaccine. Progress on vaccines against gonococci and HIV has been frustratingly slow.

Postcoital washing or promptly urinating after coitus has not been shown to be effective in reducing the risk of diseases transmitted sexually.

Because the hope for rapid cures of some important sexually transmitted diseases has vanished, persons at risk should modify their sexual behavior and use barrier contraceptives plus spermicides to protect themselves and their partners.

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